SECTION 16130

ELECTRICAL BOXES AND FITTINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

The Conditions of the Contract and applicable requirements of Division 1 and Section 16010 govern this Section.

1.2 DESCRIPTION OF WORK:

A. Work Included: Provide electrical box and fitting Work as shown, scheduled, indicated, and as specified.

B. Types: The types of electrical boxes and fittings required for the project include the following:

1. Outlet boxes
2. Junction boxes
3. Pull boxes
4. Floor boxes
5. Fire rated poke-thru boxes
6. Conduit bodies
7. Bushings
8. Locknuts.

1.3 QUALITY ASSURANCE:

A. MANUFACTURERS: Provide products produced by one of the following:

1. Interior Outlet Boxes:

a. Appleton Electric Co.
b. Arrow Conduit and Fittings Corp.
c. National Electric Products Co.
d. O. Z. Gedney Co.
e. Steel City, Midland-Ross Corp.

2. Weatherproof Outlet Boxes:

a. Appleton Electric Co.
b. Crouse-Hinds Co.
c. Harvey Hubbell, Inc.
d. Pyle-National Co.

3. Junction and Pull Boxes:

a. Appleton Electric Co.
b. Arrow-Hart, Inc.
c. General Electric Co.
d. Hoffman Engineering Co.
e. Keystone Columbia, Inc.
f. O. Z. Gedney Co.
g. Square D Co.

4. Floor Boxes:

a. Harvey Hubbell, Inc.
b. Steel City, Midland-Ross Corp.
c. Walker Parkersburg Division of Textron, Inc.

5. Fire Rated Poke-Thru Boxes:

a. Dual-Lite Wiring Products Division
b. Harvey Hubbell, Inc.
c. Nelson Electric
d. Raceway Products
e. Square D
f. Walker Parkersburg Division of Textron, Inc.

6. Conduit Bodies:

a. Appleton Electric Co.
b. Crouse-Hinds Co.
c. Killark Electric Mfg. Co.
d. Pyle-National Co.

7. Bushings, Knockout Closures, and Locknuts:

a. Allen-Stevens Conduit Fittings Corp.
b. Allied Metal Stamping, Inc.
c. Appleton Electric Co.
d. Carr Co.
e. Raco, Inc.
f. Steel City, Midland-Ross Corp.
g. Thomas and Betts Co., Inc.

B. UL Label: All electrical boxes and fittings shall be UL labeled.

PART 2 - PRODUCTS

2.1 FABRICATED MATERIALS:

A. Interior Outlet Boxes: Provide galvanized steel interior outlet wiring boxes, of the type, shape, and size, including depth of box, to suit each respective location and installation; constructed with stamped knockouts in back and sides, and with threaded holes with screws for securing box covers or wiring devices. Provide "Gang" boxes where devices are shown to be grouped.

1. Type for Various Locations:

a. Ceiling Plenums: 4 inches square, 2-1/8 inches deep.

b. Plaster Walls: 4 inches square, 2-1/8 inches deep, with raised plaster cover; set with face approximately 1/8 inches from finished surface. Furnish shallow boxes where necessary.

c. Dry-wall Construction Walls: Standard galvanized switch box, 2-1/8 inches deep. Furnish shallow boxes where necessary.

d. Masonry Walls: Galvanized switch boxes made especially for masonry installations; depths of boxes must be properly coordinated for each specific installation.

e. Surface: Type FS or FD box with surface cover.

f. Poured concrete walls and ceilings: Concrete tight galvanized boxes, 4" square or 2" x 4", 2-1/8" deep, as required by device installed.

g. Special: Where above types are not suitable, furnish boxes to suit the use taking into account space available, appearance, and Code requirements.

2. Interior Outlet Box Accessories: Provide outlet box accessories as required for each installation, including proper covers or wall device plates, mounting brackets, wallboard hangers, extension rings, plaster rings for all boxes in plaster construction, fixture studs, cable clamps and metal straps for supporting outlet boxes, compatible with outlet boxes being used and meeting requirements of individual wiring situations.

B. Weatherproof Outlet Boxes: Provide hot dipped galvanized cast-iron weatherproof outlet wiring boxes, of the type, shape, and size (including depth of box) required, with threaded conduit ends, Lexan fiberglass reinforced cover plate with spring-hinged waterproof caps suitably configured for each application, including face plate gasket and corrosion-resistant fasteners.

C. Junction and Pull Boxes: Provide galvanized sheet steel junction and pull boxes, with screw-on covers, of the type, shape, and size, to suit each respective location and installation. Type for Various Locations:

1. 100 Cubic Inches in Volume or Smaller: Standard outlet boxes with stamped knockouts.

2. 150 Cubic Inches in Volume or Larger: Code gauge steel with sides formed and welded, screw covers unless shown to have hinged doors. Hinged doors with locking device same as furnished on panel-boards. Knockouts factory stamped or formed in field with a cutting tool to provide a clean symmetrically-cut hole.

3. Exterior or Wet Areas: Weatherproof galvanized steel construction with proper gaskets and corrosion-resistant fasteners.

D. Floor Boxes: Provide fully adjustable floor boxes for installation in concrete floors as indicated. Boxes shall be adjustable both before and after the concrete pour.

1. Waterproof Membrane Floors - Flush Boxes: Concrete-tight cast iron floor box with brass trim to suit device shown and floor finish. Provide carpet rings where required.

2. Non-Waterproof Membrane Floors (above grade)-Flush Boxes: Concrete-tight steel floor box with brass trim to suit device shown and floor finish. Provide carpet rings where required.

E. Conduit Bodies: Provide galvanized cast-metal conduit bodies, of the type, shape,

and size, to suit each respective location and installation, constructed with threaded conduit ends, removable cover, and corrosion-resistant screws.

F. Bushings, Knockout Closures, and Locknuts: Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts, and insulated conduit bushings of the type and size to suit each respective use and installation.

PART 3 - EXECUTION

3.1 INSTALLATION OF BOXES AND FITTINGS:

A. Install electrical boxes and fittings as shown, in compliance with NEC requirements, or in accordance with the Manufacturer's written instructions and with recognized industry practices to ensure that the boxes and fittings serve the intended purposes.

B. Use outlet and switch boxes for junctions on concealed conduit systems except in utility areas, where exposed junction or pull boxes may be located.

C. Determine from the Drawings and by actual determination on the site, the exact location of each outlet. The outlet locations shall be modified from those shown to accommodate changes in door swings or to clear other interferences that may arise from job construction details, as well as modification to center them within room spaces. These modifications shall be made with no change in contract price and shall be a matter of job coordination. Check these conditions throughout the entire job and notify the Contracting Officer of discrepancies, as they may occur, to verify the modifications, if any, before proceeding with the installation of the Work. Set wall boxes in advance of wall construction, blocked in place and secured. Set all wall boxes flush with the finish and install extension rings as required to extend boxes to the finished surfaces of special furring or wall finishes.

D. Unless otherwise noted or directed to the contrary at the time of installation, outlet boxes shall be placed at the following heights (center of box to finished floor level):

1. Wall switches: 54"

2. Wall pay-telephone outlets: 48"

3. Receptacles: 12"

4. Telephone outlets (standard): 12"

5. Thermostats: 54"

E. Where devices are indicated with the suffix "H", mount device with long axis horizontal.

F. Where devices are located with an adjacent "dot", mount 6" above counter top to centerline of device.

G. On exposed conduit systems provide pull boxes, junction boxes, wiring troughs, and cabinets wherever necessary for proper installation of various electrical systems.

H. Provide weatherproof boxes for interior and exterior locations exposed to weather or moisture.

I. Provide knockout closures to cap unused knockout holes where blanks have been removed.

J. Locate boxes and conduit bodies so as to ensure accessibility of electrical wiring.

K. Secure boxes rigidly to the substrate upon which they are being mounted, or solidly embed boxes in concrete or masonry.

L. Boxes for any conduit system shall not be secured to any suspended ceiling system, HVAC ductwork, or mechanical piping.

M. Provide junction and pull boxes for feeders and branch circuits where shown and where required by the NEC, regardless of whether boxes are shown or not.

N. Provide access doors or other approved means of access where junction boxes are concealed in wall and ceiling cavities.

O. Coordinate locations of boxes in fire rated partitions and slabs so as to not affect the fire rating of the partition or slab. Notify the Contracting Officer in writing where modifications or additional construction are required to maintain the partition or slab fire rating.

END OF SECTION